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Design Standards

Section 12

Cleaning and Testing Water Systems

SECTION XII

CLEANING AND TESTING WATER SYSTEMS

12-1 GENERAL

The Owner shall disinfect and test all mains at no additional compensation regardless of existing conditions.. This may include repairing existing facilities that must be included in the test and are not capable of holding test pressures. All concrete reaction blocks shall be in place at least five days before the initial filling of the line unless high early strength concrete is used, which will require three days in place.

12-2 CLEANING AND DISINFECTION

Each line, after being tested and before being placed in service, shall be disinfected by chlorination. Prior to chlorination the entire line shall be flushed to ensure that all dirt or foreign objects have been removed from the line. Sufficient chlorine shall be added to ensure residual of twenty-five parts per million (ppm) in the water after twenty-four hours standing in the pipe. Liquid chlorine or liquid calcium hypochlorite solution may be used. Methods of application shall be approved by the Engineer. Following chlorination, all treated water shall be drained and the pipeline thoroughly flushed with clean water.

The entire line shall be flushed after the specified contact period and such flushing continued until the water is free from excess chlorine. The entire line, including hydrant leads, branch lines, and dead-end mains shall be flushed. The discharge of flushed water shall be accomplished in such a manner that no erosion will occur, and no damage to streets or other property. Procedures for discharge will be subject to the review of the Engineer.

12-3 PRESSURE TEST

After the pipe has been laid including fittings, valves, corporations, services, and hydrants, and the tine has been backfilled in accordance with the article on "Back-filling and Grading" of the Standard Specifications, each valved section, unless otherwise directed by the Engineer, shall be subjected to hydrostatic pressure of not less than 200 pounds per square inch. The duration of each such test shall not exceed 0.4 gallons per inch diameter per 1000 lineal feet of main being tested during the two hour test period.

Each valved section of pipe shall be slowly filled with water and the specified test pressure, measured at the lowest point of elevation, shall be applied by means of a pump connected to the pipe in a satisfactory manner. The pump, pipe connections, gauges, and all necessary apparatus shall be furnished by the Contractor. Gauges and measuring devices must meet with the acceptance of the Engineer and have the necessary pipe taps made as directed. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, if necessary, at points of highest elevations and afterward tightly plugged with brass plugs.

Any cracked or defective pipes, fittings, valves, or hydrants discovered in the pressure test shall be removed and replaced by the Contractor with sound material in the manner provided. The test shall be repeated until the water main passes the pressure test and is accepted by the Engineer.

12-4 OPERATIONAL INSPECTION

At the completion of the project and in the presence of the Inspector, the Contractor

shall operate all valves, hydrants, and water services to ascertain that the entire facility is in good working order; that all valve boxes are centered and valves are opened; that all hydrants operate and drain properly; that all curb boxes are plumb and centered; and that water is available at all curb stops.

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